

US EPA ARCHIVE DOCUMENT

CATALOG DOCUMENTATION
EMAP-NATIONAL COASTAL ASSESSMENT PROGRAM LEVEL DATABASE
EMAP-WEST ALASKAN PROVINCE ALASKA 2002 and 2004
WATER QUALITY AND NUTRIENT DATA

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1. DATA SET IDENTIFICATION

1.1 Title of Catalog document
National Coastal Assessment Database
2002 and 2004 Alaskan Province
Water Quality and Nutrient Data

1.2 Authors of the Catalog entry
Larry Cooper
Southern California Coastal Water Resources Project

1.3 Catalog revision date
8 September 2011

1.4 Data set name
Water Quality and Nutrient Data

1.5 Task Group
EMAP-West

1.6 Data set identification code
3

1.7 Version
1

1.8 Requested Acknowledgment

If you plan to publish these data in any way, EPA requires a standard statement for work it has supported: "Although the data described in this article have been funded wholly or in part by the U. S. Environmental Protection Agency through its EMAP-National Coastal Assessment Program, it has not been subjected to Agency review, and therefore does not necessarily reflect the views of the Agency and no official endorsement should be inferred."

2. INVESTIGATOR INFORMATION

2.1 Principal Investigator
Alaska Department of Environmental Conservation (ADEC), Division of Water

2.2 Investigation Participant-Sample Collection
NA

3. DATA SET ABSTRACT

3.1 Abstract of the Data Set

The Water Quality data reports physical data collected from water quality casts taken with a CTD Seabird. Nutrient data were measured from water column samples taken at various depths with a Niskin bottle. The stations were located in estuaries on the South-central Coast of the State of Alaska.

3.2 Keywords for the Data Set

Water quality measurements, nutrients, water column measurements

4. OBJECTIVES AND INTRODUCTION

4.1 Program Objective

EPA's National Coastal Assessment (NCA), is a five-year effort led by EPA's Office of Research and Development to evaluate the assessment methods it has developed to advance the science of ecosystem condition monitoring. C2000 represents the current state of evolution of EPA's Environmental Monitoring and Assessment Program (EMAP). EMAP was originally designed to provide a quantitative assessment of the regional extent of environmental problems by measuring status and change in selected indicators of ecological condition. EMAP provides a strategy to identify and bound the extent, magnitude and location of environmental degradation and improvement on a regional scale.

4.2 Data Set Objective

The objective of the water quality and nutrient data is to characterize the components of water column samples collected from estuaries on the West Coast.

4.3 Background Discussion

Water column parameters were characterized generally at one meter increments from surface to bottom, while nutrient samples were collected at the surface, bottom and mid-depth of the water column.

4.4 Summary of Data Set Parameters

Water quality components were recorded on instruments, while nutrient data were measured from surface and bottom samples collected at a station.

5. DATA ACQUISITION AND PROCESSING METHODS

5.1 Data Acquisition

5.1.1 Sampling Objective

To collect samples suitable for nutrient measurements and deploy instrumentation suitable for water column measurements.

5.1.2 Sample Collection Methods Summary

The CTD Seabird water quality profiling was used for basic water quality parameters of temperature, salinity, pH, dissolved oxygen (DO), oxygen (% saturation), conductivity, turbidity, pH, fluorescence and depth. A Niskin Sampler was deployed to collect samples for nutrients. The secchi disk is cast during the deployment and retrieval of the CTD. The depth of the cast is determined as the precise point at which the viewer can no longer detect the disk in the water column.

5.1.3 Sampling Start Date

14 June 2002

20 July 2004

5.1.4 Sampling End Date

1 August 2002

20 August 2004

5.1.5 Platform

Small boat whenever possible.

5.1.6 Sampling Equipment

CTD SeaBird, Niskin bottle, secchi disk

5.1.7 Manufacturer of Sampling Equipment

General Oceanics

5.1.8 Key Variables

These data contain surface, bottom and mid-depth values recorded at the time of sampling. Samples collected for nutrients were analyzed later.

5.1.9 Sampling Method Calibration

NA

5.1.10 Sample Collection Quality Control

For each of the water quality parameters, a maximum range of allowable difference that the instrument may deviate from the calibration standard has been established:

Temperature Thermometer ± 1 EC

Salinity Standard seawater ± 0.2 ppt

pH pH buffer solution ± 0.1 pH units

DO 100% saturation +/- 3.0%
Depth Sea level +/- 0.2 m

5.1.11 Sample Collection Method Reference

U.S. Environmental Protection Agency. 2001. Environmental Monitoring and Assessment Program (EMAP) National Coastal Assessment: Field Operations Manual. Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA/620/R-01/003.

5.2 Data Preparation and Sample Processing

5.2.1 Sample Processing Objective

Process samples to ensure quality measurements of nutrients, chlorophyll and total suspended solids.

5.2.2 Sample Processing Methods Summary

Total Suspended Solids samples are held on ice and/or refrigerated at 4 deg C for a seven day holding period. Chlorophyll filters are kept in the dark and chilled to -20 deg C until they are ready to be analyzed. Nutrient samples are to be frozen or held on ice. Frozen samples may be held up to three months. Each of the analyses will be conducted in accord with generally accepted laboratory procedures.

5.2.3 Sample Processing Method Calibration

Sample results will be compared against standards.

5.2.4 Sample Processing Quality Control

Forceps were always used to handle GFF filters holding chlorophyll samples.

5.2.5 Sample Processing Method Reference

U.S. Environmental Protection Agency. 2001. Environmental Monitoring and Assessment Program (EMAP) National Coastal Assessment: Quality Assurance Project Plan 2001-2004. Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA/620/R-01/002.

6. DATA MANIPULATIONS

6.1 Name of new or modified values

NA

6.2 Data Manipulation Description

Concentrations or measurements were averaged if replicates were taken.

6.3 Data Manipulation Examples

Not applicable

7. DATA DESCRIPTION

7.1 Description of Parameters

7.1.1 Parameter Name

Attribute Name	Format	Description
Data Group	VARCHAR2(4)	Group (program) conducting sampling
Sampling Year	NUMBER(4.0)	Year of data collection
Station Name	VARCHAR2(20)	Station identifier
Sampling Collection Date	DATE	Date of sample collection
Latitude Decimal Degrees	NUMBER(9.3)	Station: decimal degrees latitude
Longitude Decimal Degrees	NUMBER(9.3)	Station: decimal degrees longitude
Water Column Sampled	VARCHAR2(8)	Collection location (e.g., Surface)
Water Measurement Name	VARCHAR2(40)	Name of measurement
Water Measurement Value	NUMBER(13.6)	Measurement or concentration
Measurement Units	VARCHAR2(15)	Units of measure
Measurement Depth	NUMBER(5.1)	Measurement depth
Depth Units	VARCHAR2(15)	Units of measure
Type Measurement	VARCHAR2(40)	Vertical profile or ambient
Method Used	VARCHAR2(40)	Analysis or collection method

7.1.6 Precision to which values are reported

Measurement Depth 0.1

7.1.7 Minimum value in data set/7.1.8 Maximum value in data set

WATER_MEASUREMENT_NAME	MIN	MAX
Ammonium NH4	0	0.122847 mg N/L
Chlorophyll a	0.007575	37.203 ug/L
Conductivity	1.652	3.588 Siemens/m

Dissolved oxygen	1.6686	14.119 mg/L
Dissolved oxygen (saturation)	62.38	147.526 %
Nitrate	0.0	0.3965 mg N/L
Nitrite	0.0	0.069 mg N/L
Phaeophytin	0.038859	2.394039 ug/L
Dissolved inorganic phosphorous	0.001632	0.6134 mg P/L
Salinity	13.023	32.316 ppt
Secchi depth	0.1	11 m
Silicon (SiOH ₄ -Si)	107.478606	1493.037064 ug/L
Temperature	3.216	17.751 deg C
Total suspended solids	9.344444	234.133 mg/L
Turbidity	0.3645	132.967 NTU

7.2 Data Record Example

7.2.1 Column Names for Example Records

Data Group, Sampling Year, Station Name, Sampling Collection Date, Latitude Decimal Degrees, Longitude Decimal Degrees, Water Column Sampled, Water Measurement Name, Water Measurement Value, Measurement Units, Measurement Depth, Depth Units, Type Measurement, Method Used, QA Code

7.2.2 Example Data Records

EMAP-West, Alaskan Province/Alaskan Department of Environmental Conservation, 2002, AK02-0003, 08-JUL-2002, 59.815, -153.163, Bottom-2, Dissolved oxygen, 10.451, mg/L, 4.0, m, CTD SeaBird
 EMAP-West, Alaskan Province/Alaskan Department of Environmental Conservation, 2002, AK02-0034, 25-JUL-2002, 60.73, -148.646, Bottom-2, Temperature, 11.105, deg C, 4.0, m, CTD SeaBird
 EMAP-West, Alaskan Province/Alaskan Department of Environmental Conservation, 2002, AK02-0063, 16-JUL-2002, 59.809, -149.548, Mid-water-2, Salinity, 28.267, PSU, 3.0, m, CTD SeaBird

8. GEOGRAPHIC AND SPATIAL INFORMATION

8.1 Minimum Longitude

-163.14

8.2 Maximum Longitude

-144.959

8.3 Minimum Latitude

55.0757

8.4 Maximum Latitude

61.4383

8.5 Name of area or region

Stations were located in estuaries along the South-central Coast of the State of Alaska in the United States. The stations are in the Alaskan Province.

9. QUALITY CONTROL AND QUALITY ASSURANCE

9.1 Data Quality Objectives

Compliance with the Quality Assurance Plan.

For each of the water quality parameters, a maximum range of allowable difference that the instrument may deviate from the calibration standard has been established:

Hydrolab Daily Temperature Thermometer +/- 1EC

Salinity Standard seawater +/- 0.2 ppt

pH pH buffer solution +/- 0.1 pH units

DO 100% saturation +/- 3.0%

Depth Sea level +/- 0.2 m

9.2 Data Quality Assurance Procedures

Compliance with the Quality Assurance Plan and field operations document were maintained.

10. DATA ACCESS

10.1 Data Access Procedures

Data can be downloaded from the WWW server at: <http://www.epa.gov/emap/nca/html/data/>

10.2 Data Access Restrictions

NA

10.3 Data Access Contact Persons

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(401) 782-3030 (FAX)
hughes.melissa@epa.gov

10.4 Data Set Format

Data can be downloaded in Tab delimited format from the web application:
<http://www.epa.gov/emap/nca/html/data/>

10.5 Information Concerning Anonymous FTP

NA

10.6 Information Concerning WWW

Data can be downloaded from an application on the WWW server:
<http://www.epa.gov/emap/nca/html/data/>

10.7 EMAP CD-ROM Containing the Data Set

Data not available on CD-ROM.

11. REFERENCES

U.S. Environmental Protection Agency. 2001. Environmental Monitoring and Assessment Program (EMAP) National Coastal Assessment: Quality Assurance Project Plan 2001-2004. Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA/620/R-01/002.

U.S. Environmental Protection Agency. 2001. Environmental Monitoring and Assessment Program (EMAP) National Coastal Assessment: Field Operations Manual. Office of Research and Development, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Gulf Breeze, FL. EPA/620/R-01/003.

U.S. EPA. 1995. Environmental Monitoring and Assessment Program (EMAP): Laboratory Methods Manual-Estuaries, Volume 1: Biological and Physical Analyses. U.S. Environmental Protection Agency, Office of Research and Development, Narragansett, RI. EPA/620/R-95/008.

12. TABLE OF ACRONYMS

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